



Docket No.: 21994-00005-US
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Yasuaki Seki, et al.

Application No.: 09/537,083

Group Art Unit: 2827

Filed: March 29, 2000

Examiner: J. Norris

For: PRINTED CIRCUIT BOARD AND
MANUFACTURING METHOD OF THE
PRINTED CIRCUIT BOARD

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REPLY

Box Non-Fee Amendment
Commissioner for Patents
Washington, DC 20231

Dear Sir:

In response to the Office Action dated August 30, 2002, please amend the above-identified U.S. Patent application as follows:

REMARKS

Claim 1 has been rejected under 35 U.S.C. § 102(e) as being anticipated by 6,251,502 to Yasue. On page 3 of the Office Action, the Examiner mistakenly indicates that the insulative layer of Yasue comprises a mixed insulated material of more than two kinds of organic resins having different etching rates during a dry etching process. In fact, as will be explained herein after, the insulative layer of Yasue does not comprise a mixed insulative material nor does such a material comprise two kinds of resins having different etching rates during a dry etching process.

In considering both the prior art and the claimed invention, there are several common features. Such printed circuit boards are composed of a base substrate, a circuit

pattern, and insulative layer, a connection hole, a conductive film, and a conductive layer. However, manufacturing methods vary, particularly with the roughing of a surface of an insulative layer to form a conductive film on the insulative layer. Two basic processes for etching exist. They are well known in the prior art as a dry etching process and a chemical etching process. The prior art utilizes a chemical etching or wet type process and this is recognized in the Description of the Related Art, on page 4, last paragraph of the present description. On the other hand, the present invention utilizes a dry etching method as mentioned on page 5, lines 13 and 14.

Further, the nature of the insulative layer of the present invention as compared to the reference is completely different. In column 3, lines 3-10, Yasue points out that the main object of their invention is the construction of a resin insulating layer with a composite film comprising at least two layers of an adhesive layer and an insulating layer. As explained in column 6, lines 25-27 and Fig. 1 of the reference, the resin insulating layer is rendered into a composite of a lower layer 2 and an upper layer 3. Yasue discloses that the lower layer 2 is an unroughenable insulating layer and the upper insulating layer 3 is a roughenable adhesive layer soluble in the acid or oxidizing agent (see column 6, lines 27-36).

Thus, it should be clear that the printed circuit board according to the references is composed of two layers of which only the upper insulating layer is roughened by the acid or oxidizing agent, that is, roughened through a chemical etching process.

In marked contrast, the insulative layer 15 according to the present invention is composed of a mixture of more than two organic resins having a different dry etching rate. This must be interpreted in a manner wherein insulative layer 15 is a single layer of mixed materials of more than two organic resins having a different dry etching rate. The claim language clearly obviates multiple layers. Further, a surface of the insulative layer 15 is roughened through a dry etching process. In order to contrast or roughen the surface of insulating layer 15 by using a difference of etching rates, at least two different kinds of organic resins, which have different etching rates from one another, are essential.

Perhaps the Examiner's interpretation of the word "mixed" allows for a semantic interpretation of the reference so as to include the two insulating layers as being "mixed." However, this is incorrect.

The dictionary definition of the verb "mixed" (see the dictionary from Encarta.com, 2002) as being:

Combined ingredients: to combine ingredients by putting them together or blending them to make a single new substance.

Therefore, the "composite film comprising at least two layers" (Column 3, lines 6-7 of Yasue) clearly prevents the reference from anticipating the present invention.

Thus, although the reference and the presently claimed invention intend to roughen the surface of the insulative layer, the roughening process and the characteristics of materials required for the insulative layer are completely different from each other. Thus, the failure of the prior art to disclose the same nature of an insulative layer that is necessary to achieve a dry etching process for roughening an insulative layer surface.

Anticipation requires the disclosure, in a prior art reference, of each and every limitation as set forth in the claims. *Titanium Metals Corp. v. Banner*, 227 USPQ 773 (Fed. Cir. 1985); *Orthokinetics, Inc. v. Safety Travel Chairs, Inc.*, 1 USPQ2d 1081 (Fed. Cir. 1986); *Akzo N.V. v. U.S. International Trade Commissioner*, 1 USPQ2d 1241 (Fed. Cir. 1986). There must be no difference between the claimed invention and reference disclosure for an anticipation rejection under 35 U.S.C. § 102. *Scripps Clinic and Research Foundation v. Genetech, Inc.*, 18 USPQ2d 1001 (Fed. Cir. 1991); *Studiengesellschaft Kohle GmbH v. Dart Industries*, 220 USPQ 841 (Fed. Cir. 1984).

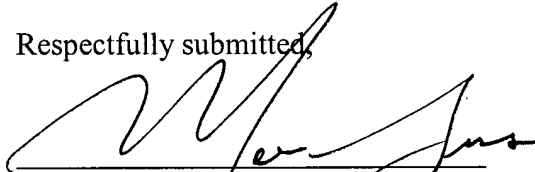
In view of the above, consideration and allowance are, therefore, respectfully solicited.

In the event the Examiner believes an interview might serve to advance the prosecution of this application in any way, the undersigned attorney is available at the telephone number noted below.

The Director is hereby authorized to charge any fees, or credit any overpayment, associated with this communication, including any extension fees, to CBLH Deposit Account No. 22-0185.

December 2, 2002

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Morris Liss', is written over a horizontal line.

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